



U.S. DEPARTMENT OF
ENERGY

HANFORD ADVISORY BOARD

DOE-RL UPDATE

SEPTEMBER 9, 2010

Matt McCormick

21 Years of Cleanup Progress

Continuing momentum to reduce or eliminate environmental risks

- Moved 2,300 tons of corroding spent nuclear fuel away from Columbia River to safe storage in Central Plateau, removed one basin
- Treated 4.4 billion gallons of contaminated groundwater, treatment in place along Columbia River and on Central Plateau; new treatment systems being deployed
- Cleaned up more than half of the total waste sites (475 of 800) and demolished nearly half (208 of 463) of the facilities near Columbia river
- Retrieved 50,437 of 70,000 drums of plutonium-contaminated buried waste, sent 451 shipments of waste to national repository in New Mexico
- Placed 5 of 8 reactors in interim safe storage, 1 underway
- Cleaned up 35 of 850 waste sites and one-quarter (271 of 970) of the facilities on the Central Plateau
- Disposed more than 10 million tons of waste in Environmental Restoration Disposal Facility

2010 HAB Advice Overview – Richland Operations Office

- Received 12 letters of advice, 9 pertaining to Richland Operations Office
- Three pieces of advice particularly valuable
 - *Beryllium – recommending independent review of CBDPP*
 - *Central Plateau Strategy*
 - *Proposed Changes to the Tri-Party Agreement for Central Plateau Cleanup Work, and for Mixed Low-Level Waste and Transuranic Mixed Waste*



Hanford Site Cleanup Completion Framework

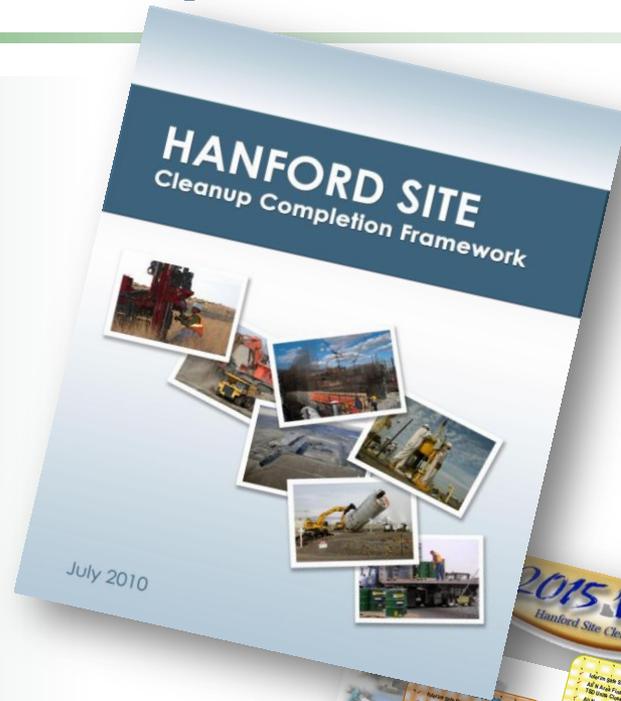


Comprehensive Information Resource on Hanford Site Cleanup

- Provides overview of Hanford cleanup strategy
- Strives to make complexities of cleanup more understandable
- Gives context for how individual activities support cleanup completion

Content

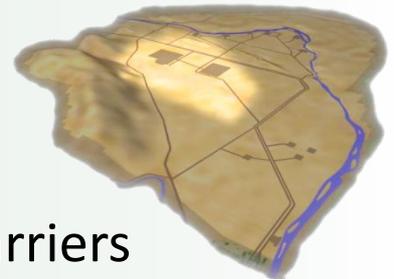
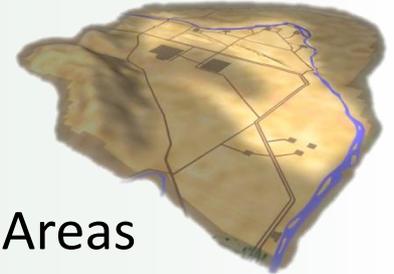
- Overarching goals for cleanup
- Relationships between three main components of cleanup: River Corridor, Central Plateau and Tank Waste
- Stages of cleanup completion building upon 2015 Vision, Central Plateau Strategy, new tank waste completion milestones
- Cleanup challenges



Key Cleanup Challenges

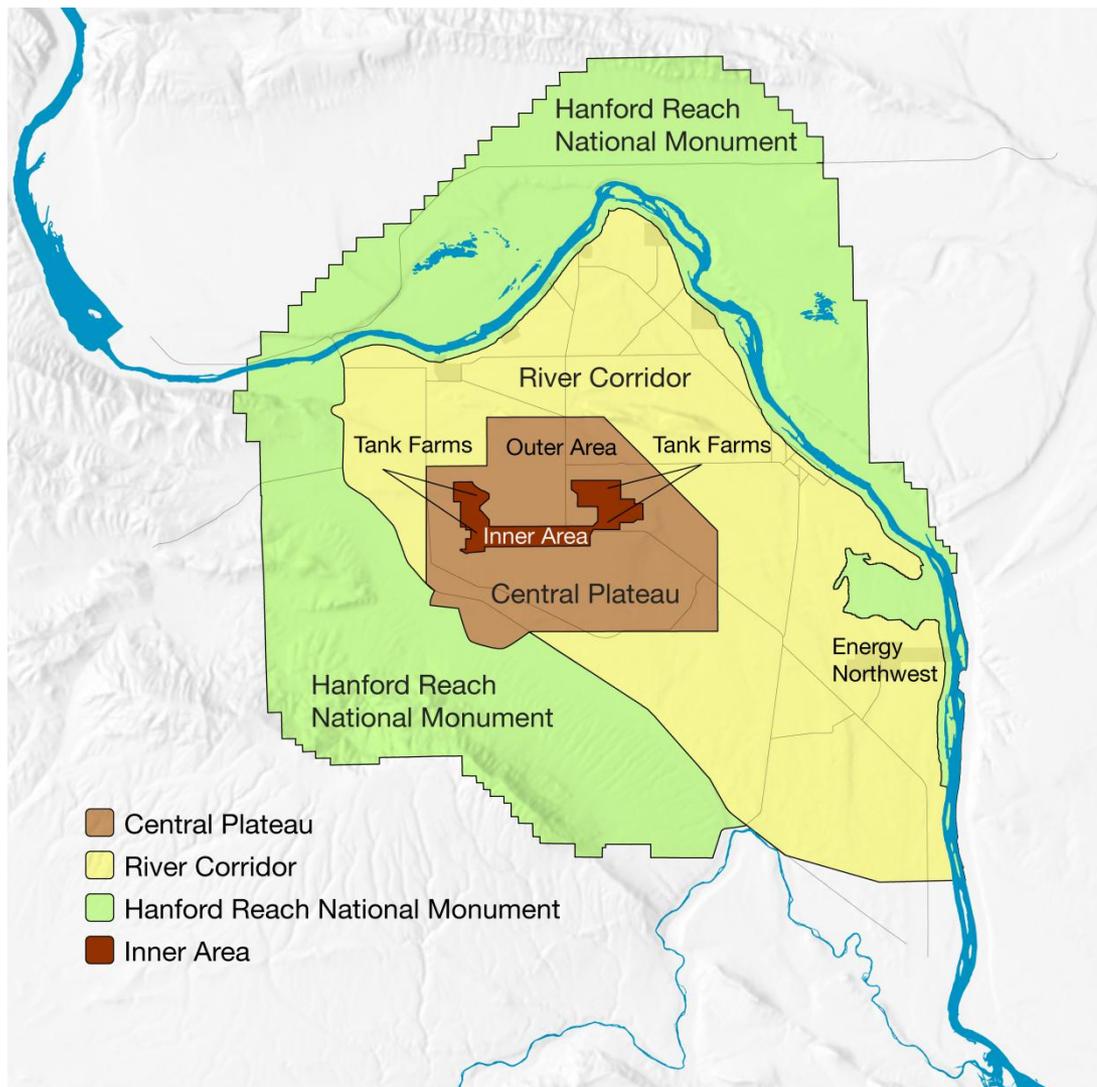
- River Corridor
 - K Basin Sludge
 - Final Disposition of Surplus Production Reactors
 - Hexavalent Chromium at 100-D, 100-H and 100-K Areas
 - Strontium-90 Plume at 100-N Area
 - Uranium Plume at 300 Area

- Central Plateau
 - Number, Variety, Complexity of Cleanup Actions
 - Deep Vadose Zone Contamination
 - Long-Term Effectiveness of Engineered Surface Barriers
 - Legacy Solid Waste Burial Grounds
 - Tank Waste Retrieval and Treatment
 - Tank Area Closure



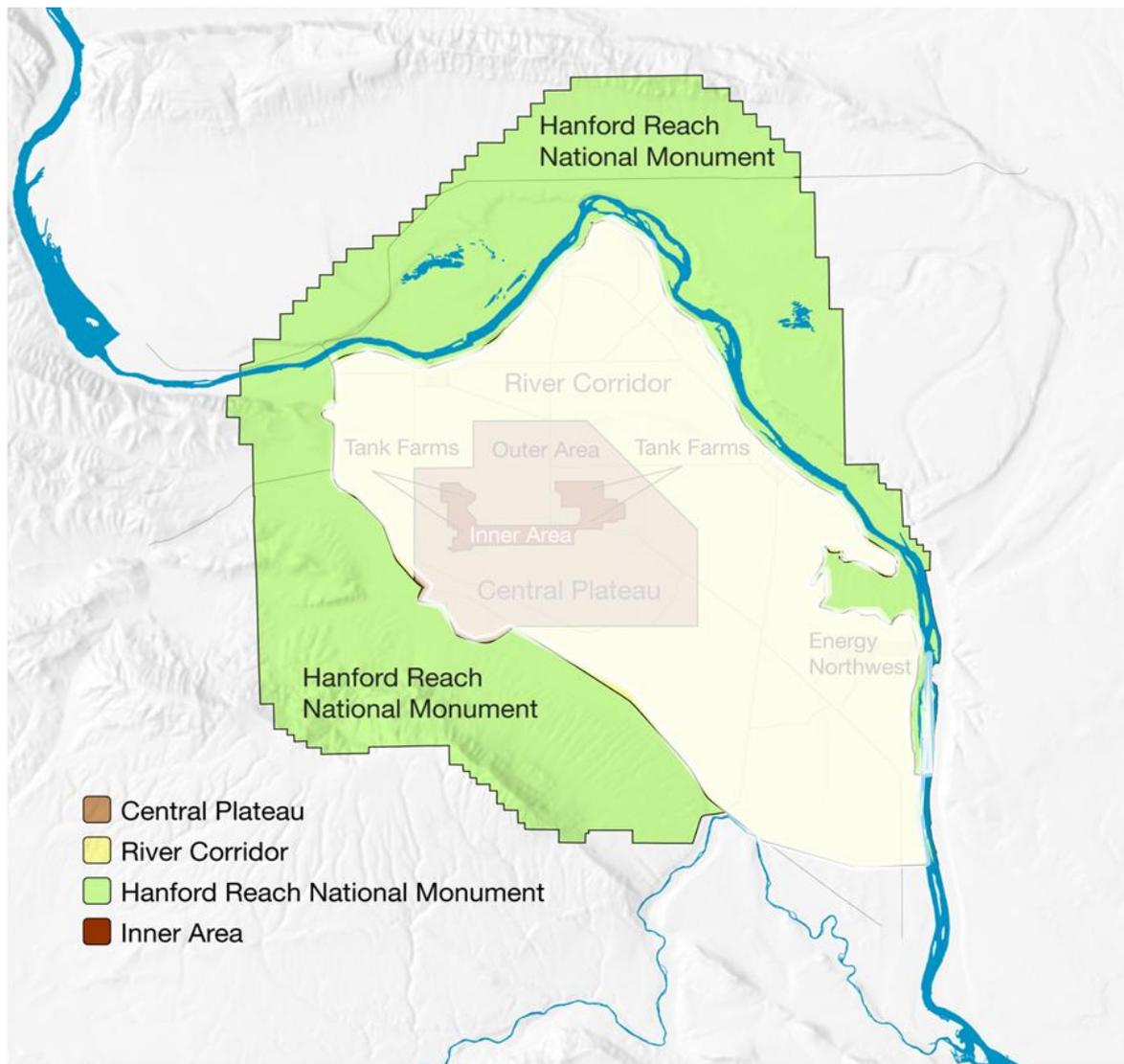
Stages of Hanford Cleanup

Four Components of Cleanup



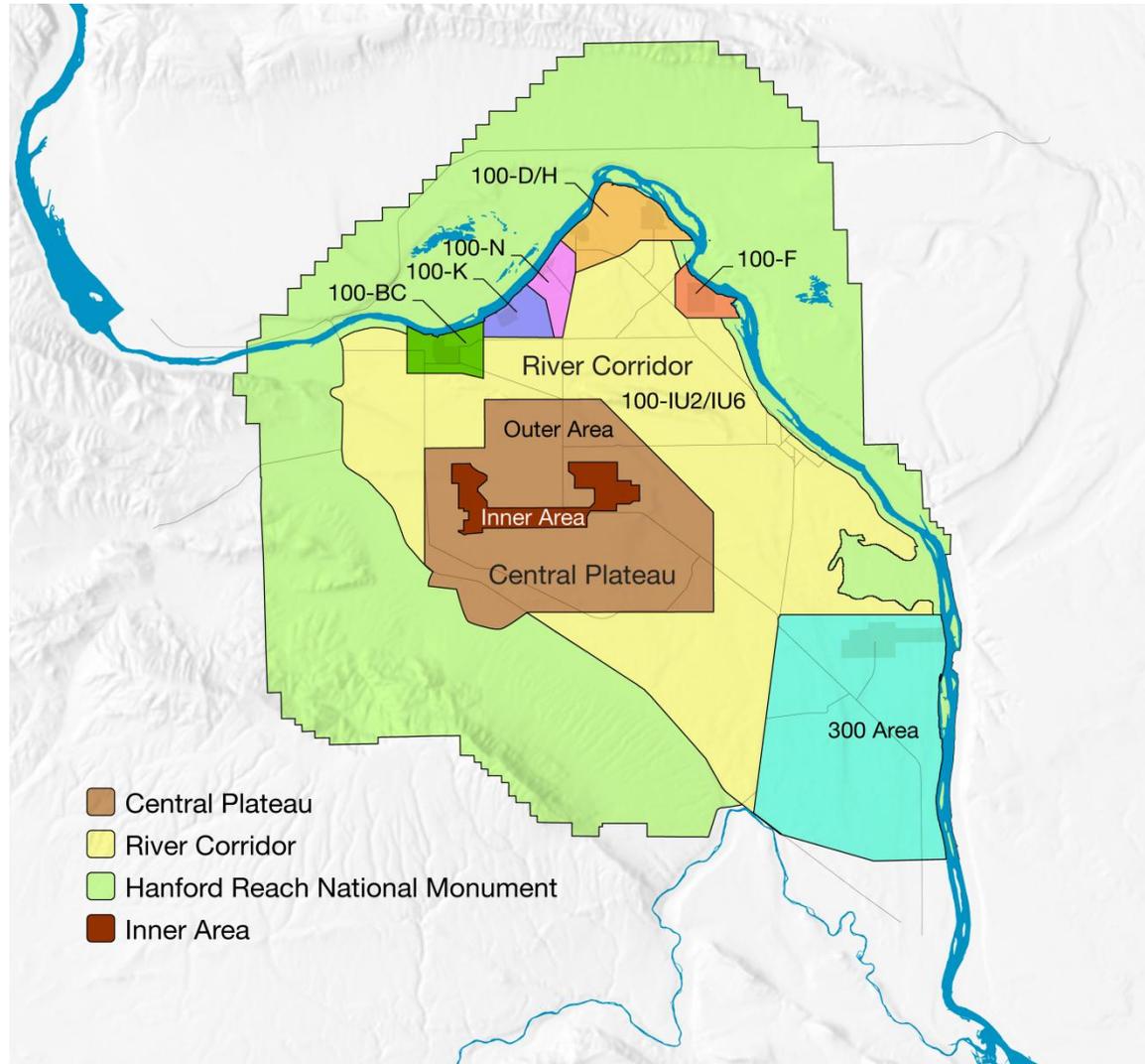
Stages of Hanford Cleanup

Hanford Reach National Monument



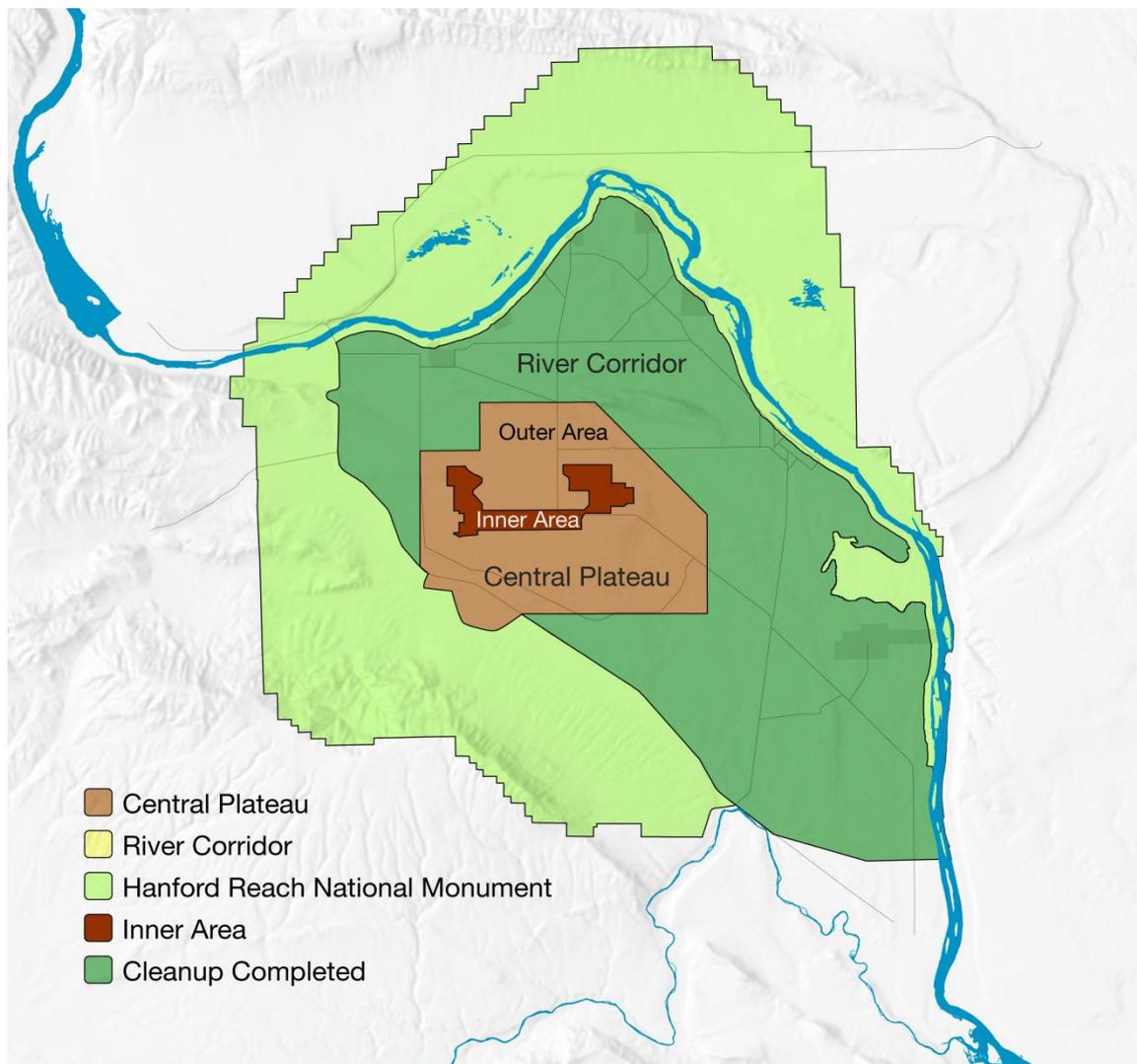
Stages of Hanford Cleanup

River Corridor 6 Decision Areas



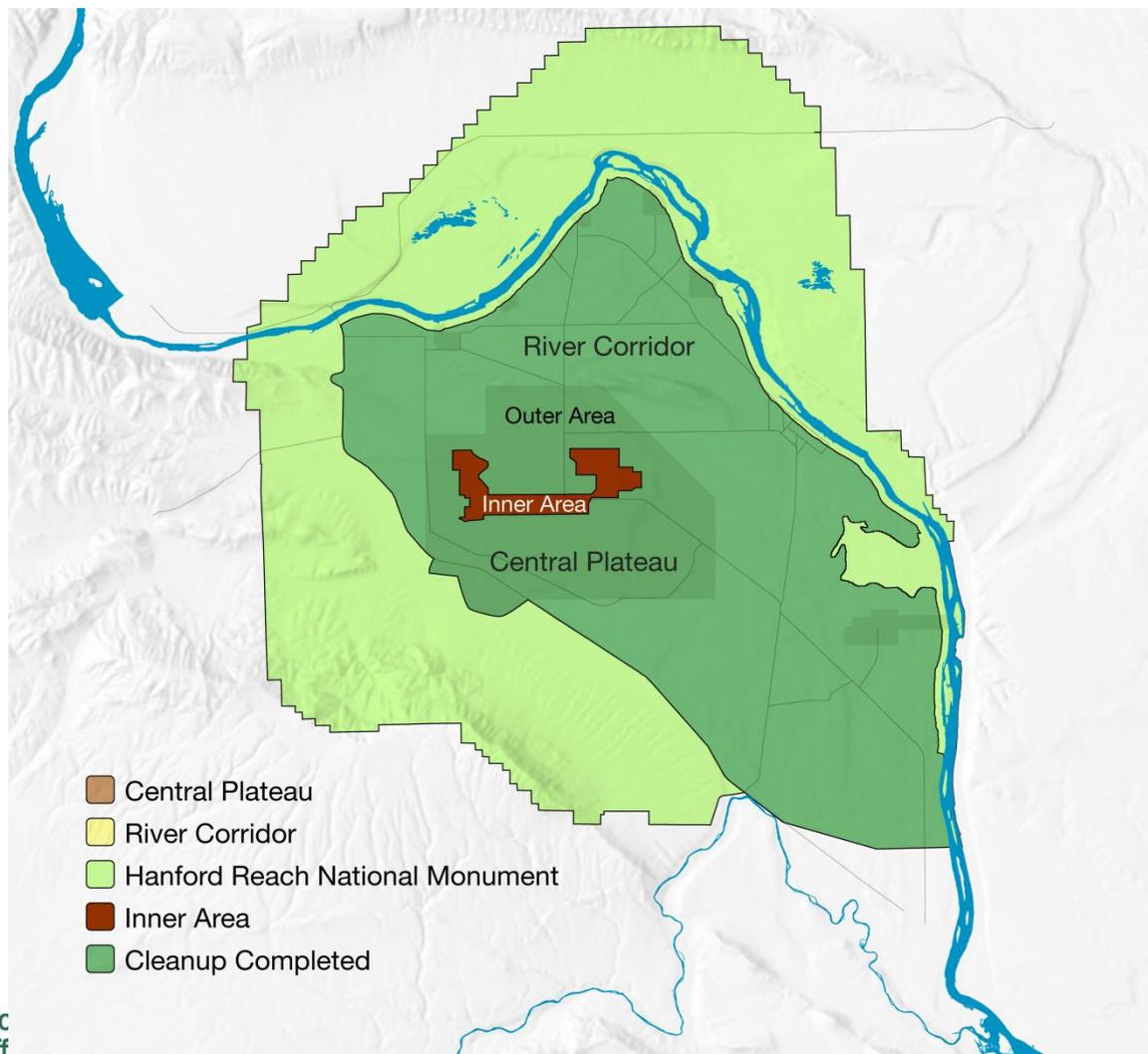
Stages of Hanford Cleanup

Central Plateau: Outer & Inner Area



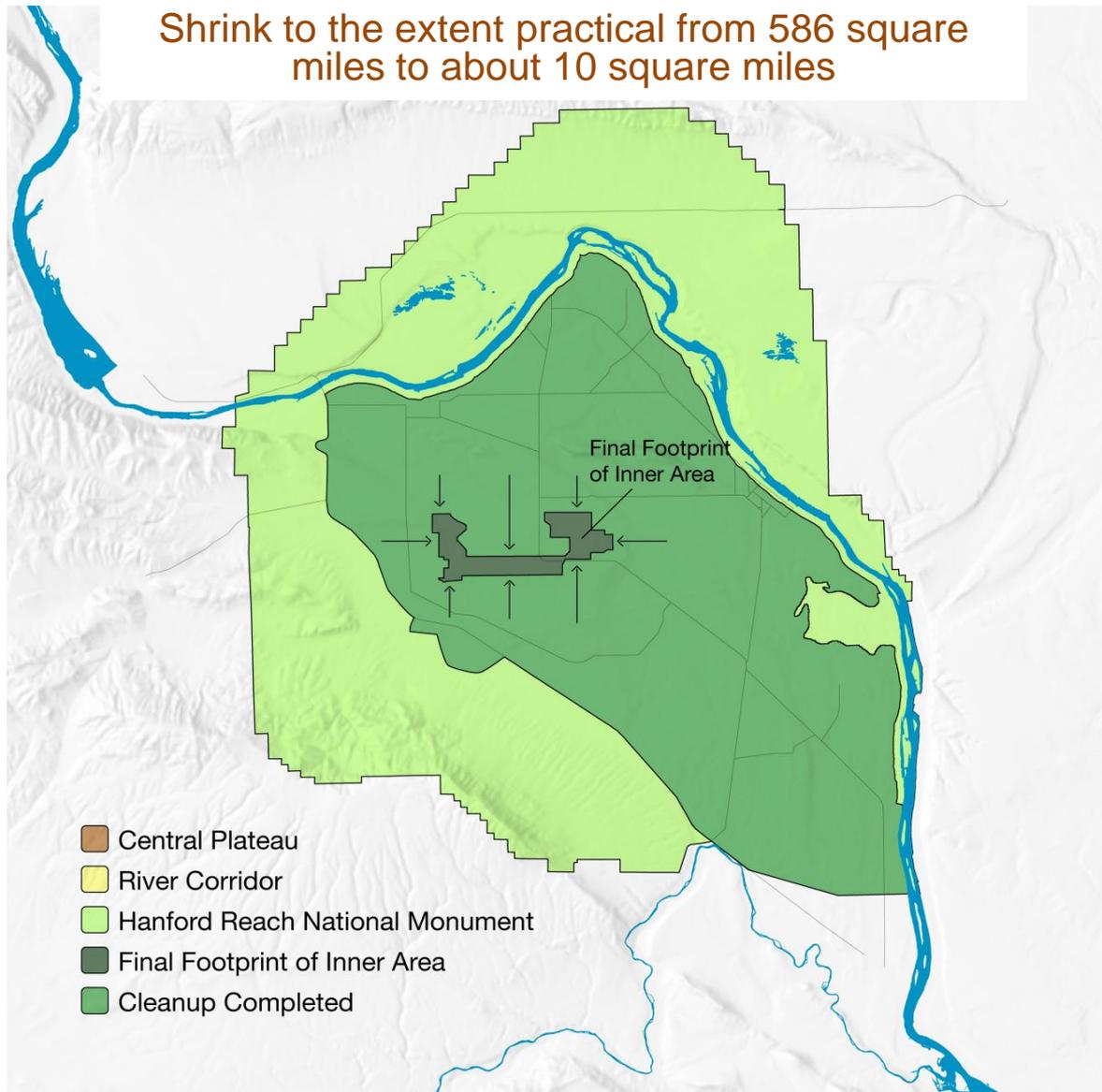
Stages of Hanford Cleanup

Inner Area: ~10 sq. mi; dedicated to long-term waste management and containment of residual contamination



Stages of Hanford Cleanup

Shrink to the extent practical from 586 square miles to about 10 square miles



FY 10 Progress - Hanford Reach National Monument



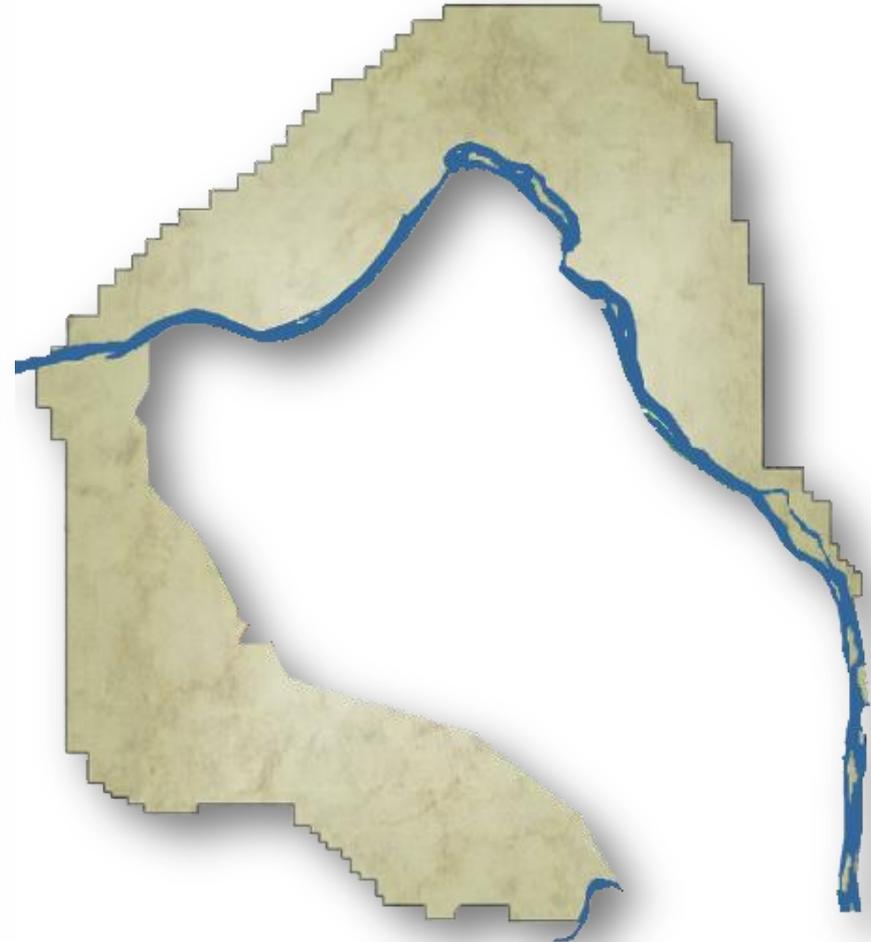
Fitzner-Eberhardt Arid Lands Ecology Reserve (ALE) Unit

- Combined Community Communication Facility operational
- More than 31,000 square feet of facilities demolished
- Completed demolition of 15 facilities on lower ALE
- 95% of debris sites removed



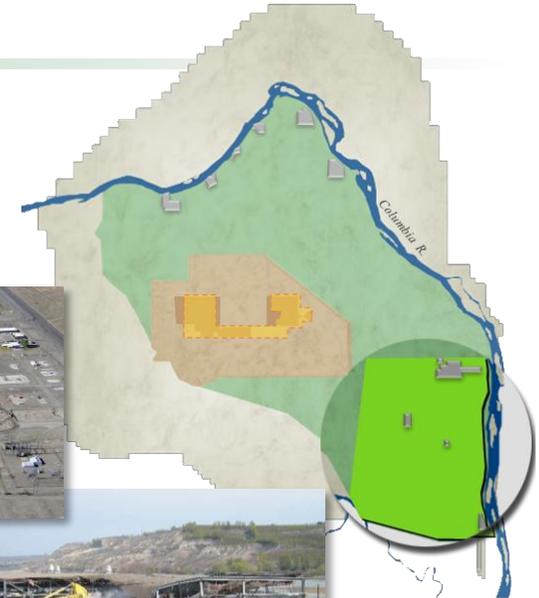
Wahluke and Saddle Mountain Units (North Slope)

- Planning for debris cleanup



2015 Vision FY10 Progress – River Corridor 300 Area

- All 300 Area groundwater remedies implemented
 - *Natural attenuation and monitoring determined not adequate*
 - *Remedial and sequester technology tests underway*
 - *Uranium geochemistry and transport research underway funded by DOE Office of Science*
- 69 of 240 facilities demolished
- 22 of 107 waste sites remediated
- 442,000 tons of soil removed
- Non-intrusive sampling underway at 618-10 Burial Ground, plans underway for 618-11



300 Area

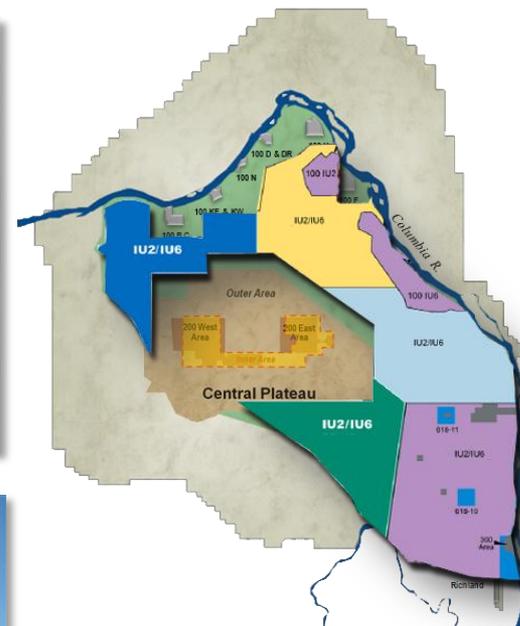


618-10 Burial Ground



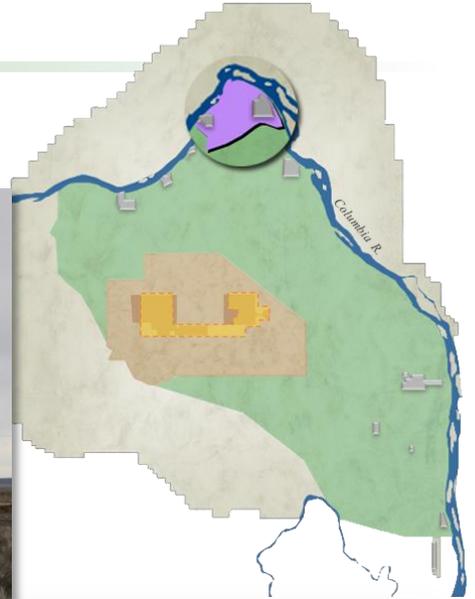
2015 Vision FY10 Progress – River Corridor IU2 & IU6 Area

- 7 waste sites remediated
- 251,000 tons of soil and debris removed
- Workers continue to sift through debris at old Hanford Town Site dump



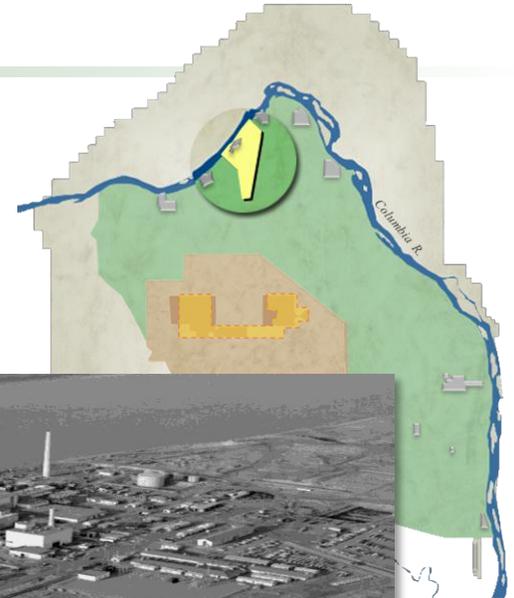
2015 Vision FY10 Progress – River Corridor D & H Area

- D Area pump & treat system construction/startup 97% complete
 - *Acceptance testing in progress*
 - *45 road crossings constructed*
 - *45 miles of high-density polyethylene piping in place*
 - *55 wells installed (41 extraction and 14 injection)*
- H Area pump & treat system
 - *Acceptance testing in progress*
 - *Initial operations anticipated in December 2010*
- 10 facilities demolished
- 78 waste sites remediated
- 1,719,000 tons of soil removed



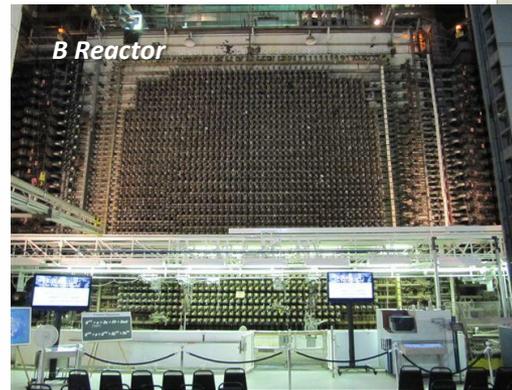
2015 Vision FY10 Progress – River Corridor N Area

- All N Area Groundwater Remedies Implemented by December 2015
(TPA target date 12/2016)
- Proposed expanded apatite (mineral) barrier
 - *Initial 300 foot test indicates at least 95% reduction of strontium-90*
- 59 of 115 facilities demolished
- 1 of 78 waste sites remediated
- 16,000 of 157,000 tons of soil removed



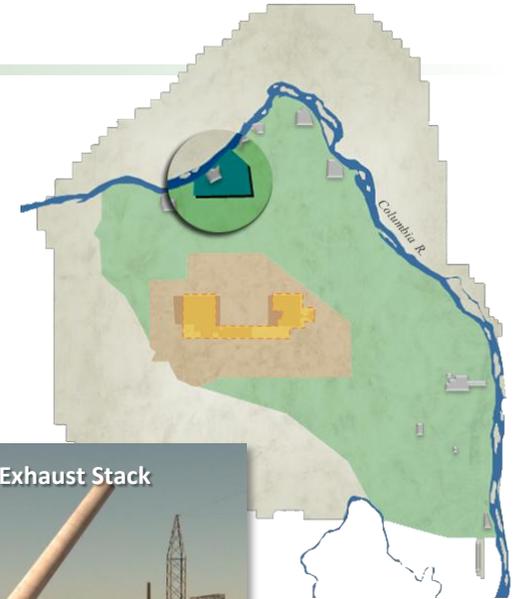
2015 Vision FY10 Progress – River Corridor B & C Area

- B Reactor Designated as a Museum or Interim Safe Storage
 - *B Reactor preserved for public access, tours provided March – September each year; about 6,000 visitors during 2010 tour season*
 - *National Park Service considering including B Reactor in Manhattan Project National Historical Park, DOE strongly supports*
- Remediating the 13-square-mile BC Control Area
 - *48 acres excavated and surveyed*
 - *288,000 tons of soil removed*
 - *33 waste sites remediated*
 - *Groundwater remediation*
 - River sampling results indicate chromium upwelling
 - Currently assessing options to address

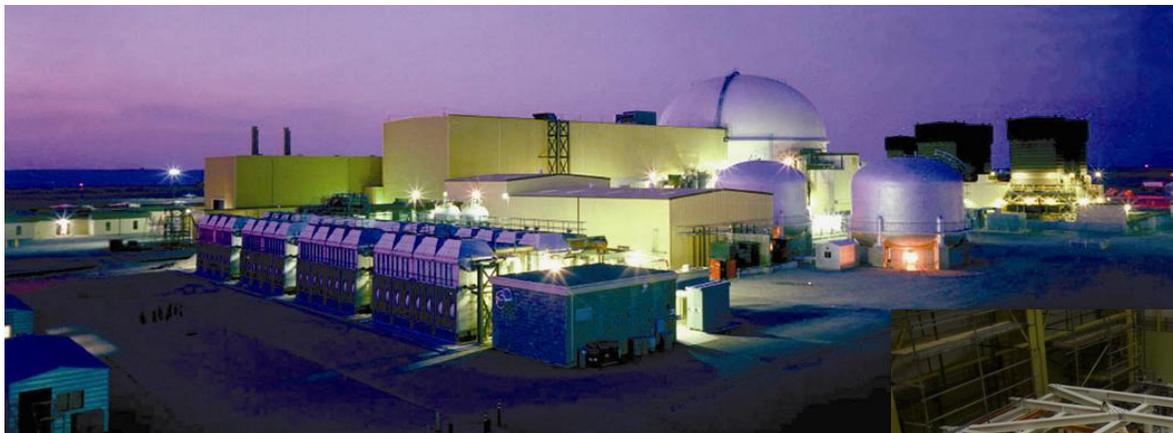


2015 Vision FY10 Progress – River Corridor K Area

- 4 waste sites remediated
 - 29 facilities demolished
 - Initiated remediation beneath former K East basin
 - Retrieved highly radioactive settler tube sludge in K West basin
 - Over 610 items of debris removed from K West basin
- Demolished 6 reactor support facilities
 - Demolition of K West sedimentation basin 85% complete
 - Completed 4 characterization core borings at KE reactor
 - Removed 368,000 tons of soil/debris
 - Brought down 175-foot exhaust stack



2015 Vision FY10 Progress - 400 Area



- Continued surveillance and maintenance of Fast Flux Test Facility
- Completed full-scale replica of the K West basin (including constructing an 85,000-gallon basin) at the Maintenance and Storage Facility (MASF) to simulate sludge retrieval

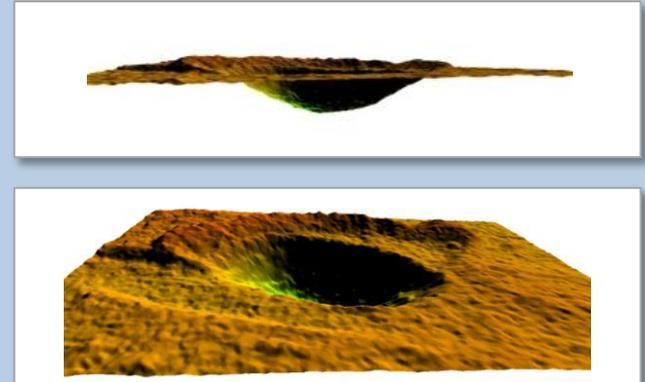


2015 Vision FY10 Progress - River Corridor

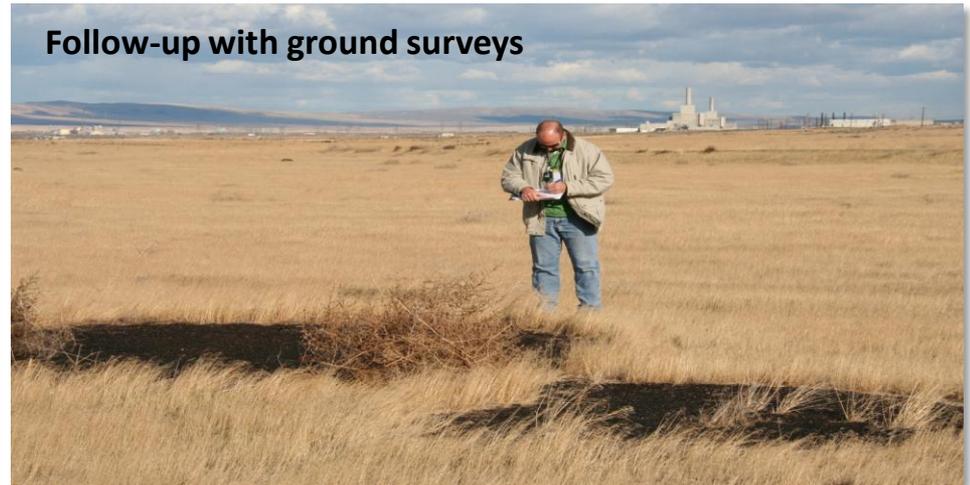
Cleanup 'In-between' Reactor Areas

- Reviewing operational history for implications of past waste sites
- Light Detection and Ranging (LiDAR) (remote sensing) technology coupled with Orthophotography (geometrically corrected aerial photography) produces highly accurate digital imagery
- 'Virtual fly-overs' looking for signs of past disturbance
- Follow-up with ground surveys
- Detected more than 20 waste sites and dozens of uncontaminated debris sites so far

Digital ground imagery



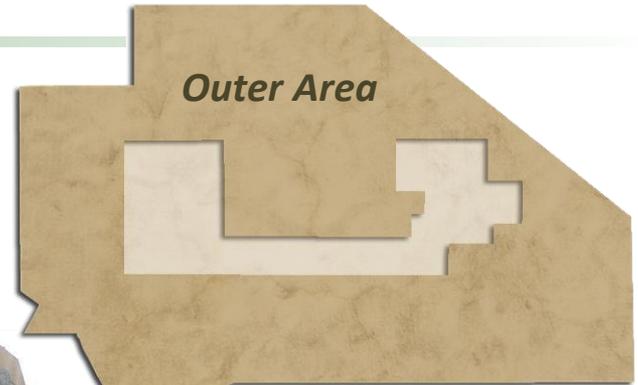
Follow-up with ground surveys



2015 Vision FY10 Progress – Central Plateau Outer Area

200 North Area

- Evaluating disposal alternatives for 14 contaminated railcars and two contaminated locomotives
- Removed 8,100 tons contaminated soil from 216-N-6 waste site
- Finished demolition of 212-N, 212-P, and 212-R buildings (formerly stored freshly irradiated fuel rods)
 - *Removed 29,000 square feet of contaminated building space*
- Completed confirmatory radiological surveys and soil samples as final stage of this demolition project



212-R basin



212-R facility



2015 Vision FY10 Progress – Central Plateau Inner Area

200 West Area



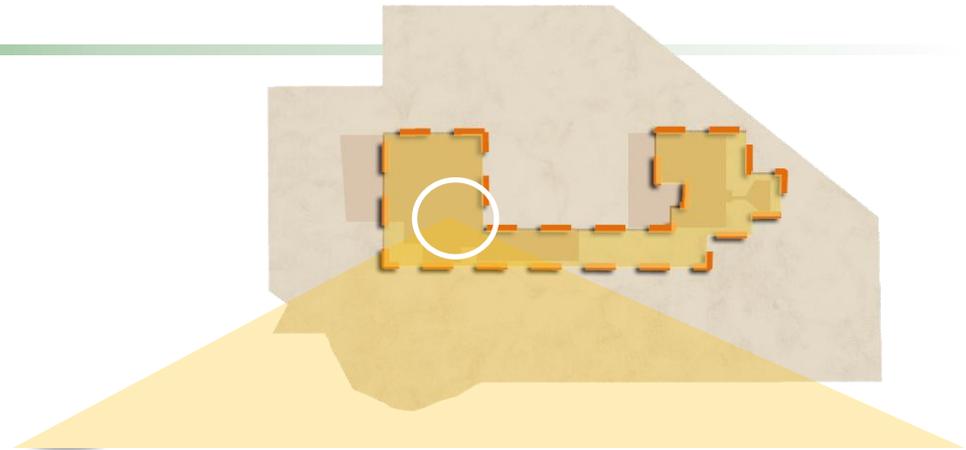
U Plant D&D preparation

- *Cleared canyon deck*
- *125 pieces of equipment relocated to cells*
- *Five U Plant ancillary facilities at ground-level or removed*
- *29,760 square feet of fixative applied in preparation for demolition*



Waste Treatment and Disposal

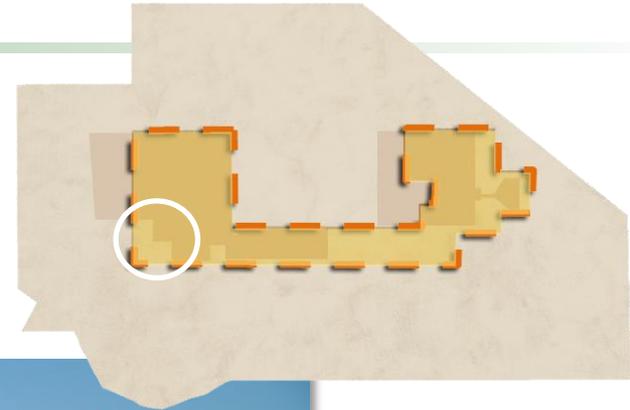
- *Resumed shipments of TRU waste to WIPP*
- *Completed construction and turnover of ERDF container maintenance facility*
- *Completed Alpha Caisson Retrieval Project to 30% design*
- *994 cubic meters of mixed/low-level waste shipped to treatment facility*
- *521 cubic meters of suspect TRU waste retrieved from trenches*



2015 Vision FY10 Progress – Central Plateau Inner Area

Plutonium Finishing Plant - Preparing for 2013 demolition--three years ahead of TPA milestone

- Completed removal of special nuclear material
 - *Initiated historical security downgrade*
- 91 glove boxes removed
 - *84 shipped for treatment/disposal*
 - *5 staged for size reduction*
- 18 ancillary structures relocated or demolished
 - *D&D teams working in 234-5Z, 2367-Z/ZB and 242-Z buildings*
 - *15 fuel storage vaults removed two years ahead of schedule*
- 1,896 cubic meters of waste shipped:
 - *1,703 mixed low-level waste*
 - *171 TRU waste*
 - *22 non-radiological waste*
- 10,884 linear feet asbestos removed
 - Successfully completed entries into 242-Z Americium Recovery Facility
 - *Completed removal of tank room combustibles*



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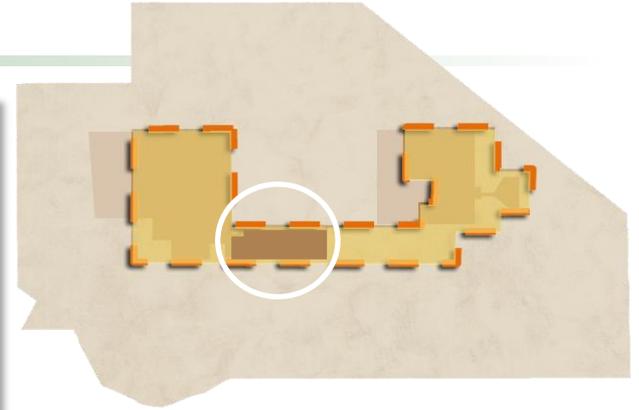
Richland Operations
Office

2015 Vision FY10 Progress – Central Plateau Inner Area

Environmental Restoration Disposal Facility (ERDF)



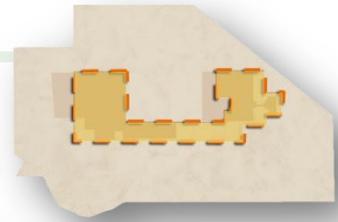
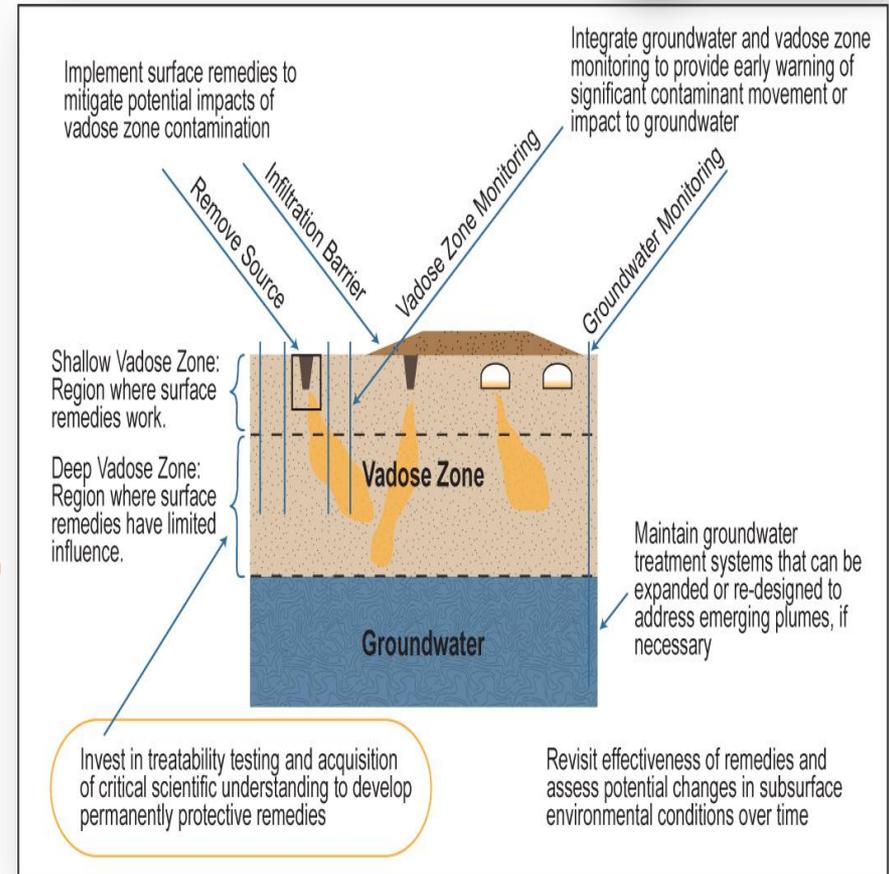
- Cleanup activities generating more waste for disposal at ERDF than ever before
- Increased average disposal rate from 200 cans/day in 2009 to 400 cans/day in 2010
- On May 10, set new individual daily record of 602 cans
- On June 24, 2010 set annual disposition record by surpassing former mark of 1,067,271 tons set in 2005
- Super cell 9 & 10 expansion will increase capacity by 50 percent



2015 Vision FY10 Progress – Central Plateau Inner Area

Deep Vadose Zone

- New Deep Vadose Zone Operable Unit proposed in Central Plateau TPA change package
 - Focal point for development, testing and application of solutions
- Treatability testing underway
 - Pilot-scale desiccation test initiated at BC Cribs
 - Uranium sequestration test planned for FY-2011 at U-8 crib
 - High-air-flow Tc-99 extraction test planned for FY-2011 at BC Cribs
 - Interim barriers installed at two tank farms include vadose zone monitoring
- Investments in long-range solutions
 - Deep Vadose Zone Technical Forum (held July, 2010)
 - Draft Long-Range Plan available for regulator and stakeholder review October, 2010
 - Securing EM-30 funding and aligning investment priorities with deep vadose zone needs
 - Establishing collaborative research efforts with the Office of Science
 - Planned “launch ” of a Deep Vadose Zone Applied Field Research Center this fall (includes EM-30 solicitation for proposals for the Hanford Center and two other Centers to address research needs)

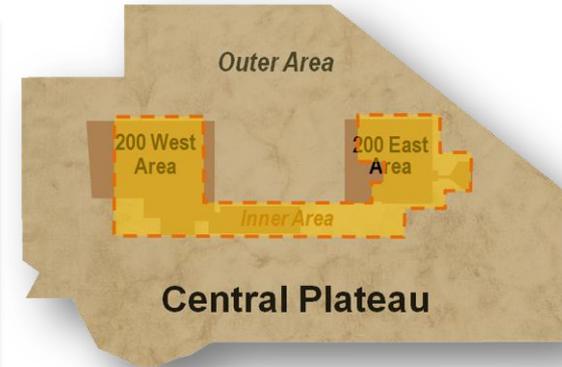


2015 Vision FY10 Progress – Central Plateau Groundwater

 Design complete, construction contract awarded for 200 West (ZP-1) pump & treat system

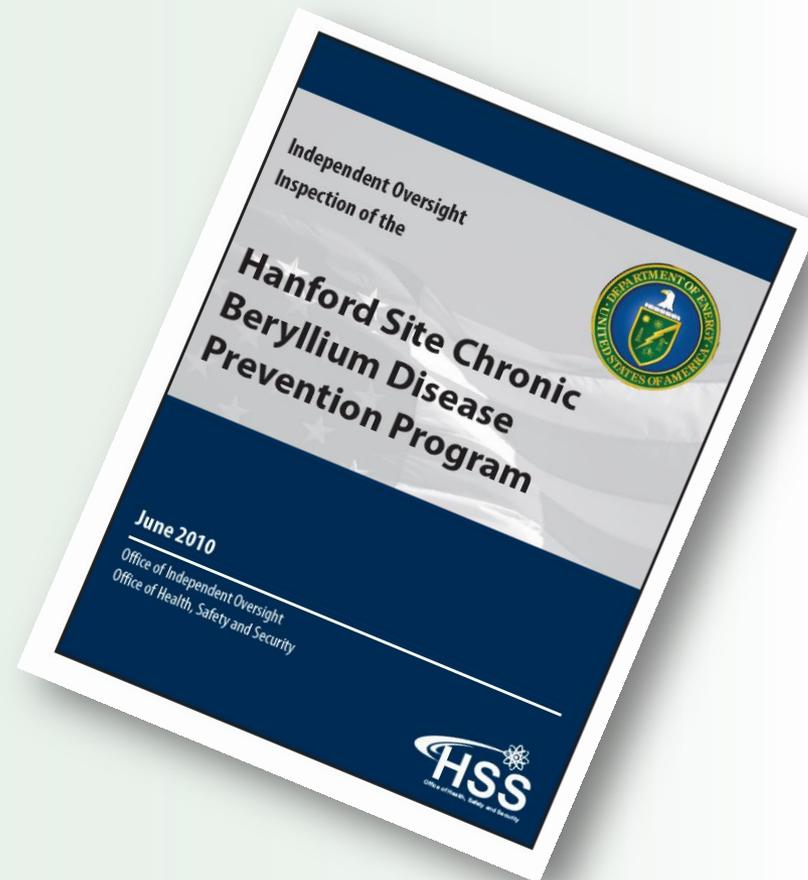
- *Concrete foundations being formed*
- *Steel construction to begin September 2010*
- *13 wells installed*
- *Pursuing LEED (“green building”) certification*

■ Decommissioned 175 wells no longer of service



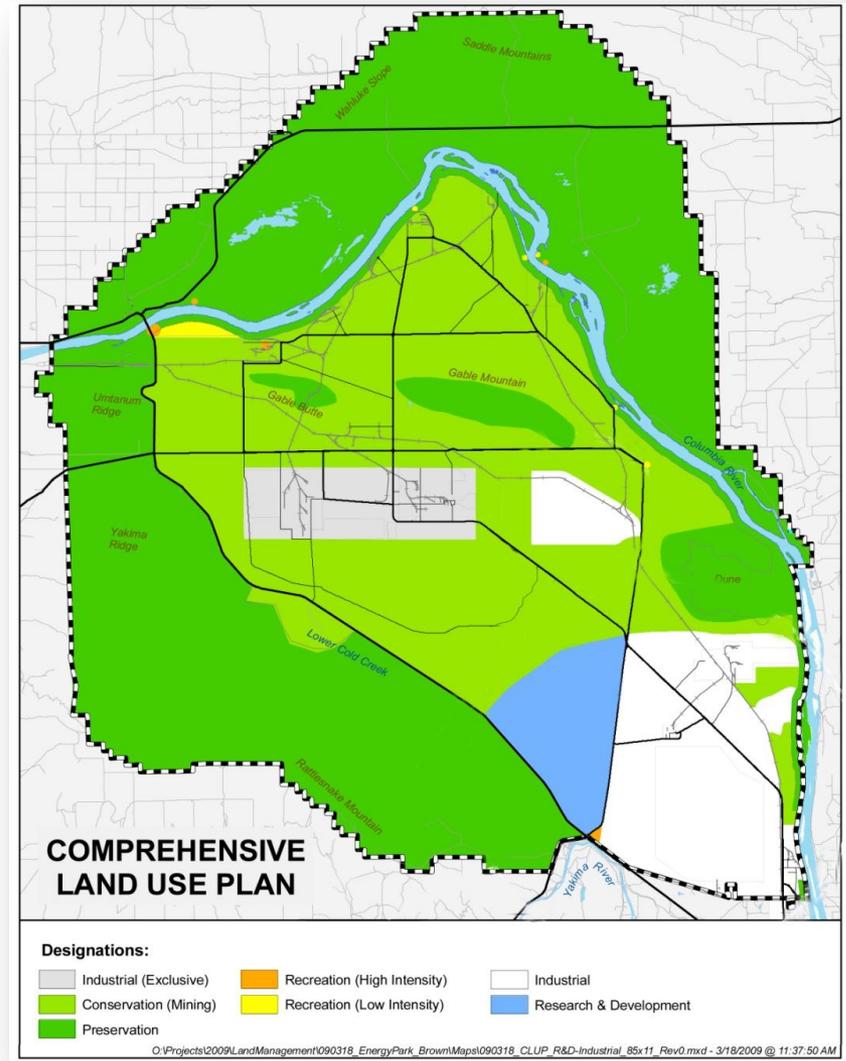
Hanford Site Chronic Beryllium Disease Prevention Program

- March-April, 2010, DOE Office of Independent Oversight [within the Office of Health, Safety and Security (HSS)] inspection on Hanford Site implementation of its sitewide Chronic Beryllium Disease Prevention Program
- HSS Report, issued on June 2, 2010, yielded four findings, 12 opportunities for improvement
- Frequent working group meetings [DOE (RL, ORP), contractors (MSA, CHPRC, WCH, WRPS, AMH) Hanford Atomic Metal Trades Council, Beryllium Awareness Group]
- Contractors have submitted corrective action plans which have been integrated into one draft plan which was submitted to DOE-Environmental Management (EM) on August 30, 2010 - EM reviewing draft plan and coordinating with HSS
- Draft Corrective Action Plan includes 255 items that address each finding and opportunity for improvement identified in the HSS Report
- Interim actions underway on items identified as priority by working group.



Energy Park Initiative

- February 2010 lease request from Energy Northwest; supported by Mid-Columbia Energy Initiative.
- April & August 2010 – Hanford Site Manager met with Tribal Nations to discuss Energy Park Initiative
- In considering this initiative, DOE to ensure:
 - *Geographic boundaries consistent with Comprehensive Land Use Plan*
 - *Leases compliant with applicable laws, regulations, and obligations*
 - *Continued open dialogue with parties interested in leasing land for energy use*
- October 28, 2010 – DOE will hold community forum to discuss/obtain input
- Following community forum, DOE-RL will determine path forward regarding Energy Northwest lease request



Cleanup After Recovery Act – Preparing for 2012 and Beyond

- Cleanup funding anticipated to decrease in 2012 compared to 2011
- DOE-RL submitted 2012 funding request of 1.6 billion
- Committed to focus on cleanup priorities and minimize workforce impacts

FY 2012 Congressional Budget Request

PBS	PBS Title	FY 2010 Omnibus	FY 2011 President's Budget	FY 2012 Field Request
RL-0011	NM Stabilization and Disposition - PFP	\$84,518	\$64,969	\$205,446
RL-0012	SNF Stabilization and Disposition	\$123,566	\$94,016	\$120,822
RL-0041	Nuclear Facility D&D - River corridor Closure Project	\$333,283	\$386,028	\$360,804
Subtotal 2012	2012 Accelerated Completion	\$541,367	\$545,013	\$687,072
RL-0013	Solid Waste Stabilization and Disposition - 200 Area	\$126,975	\$135,026	\$329,319
RL-0030	Soil and Water Remediation - Groundwater/Vados Zone	\$198,009	\$129,629	\$264,780
RL-0040	Nuclear Facility D&D - Remainder of Hanford	\$101,789	\$139,641	\$214,600
RL-0100	Richland Community and Regulatory Support	\$21,940	\$19,620	\$26,338
Subtotal 2035	2035 Accelerated Completion	\$448,713	\$423,916	\$835,037
RL-0020	Safeguards and Security	\$82,771	\$69,234	\$74,066
RL-0042	Nuclear Facility D&D - Fast Flux Test Facility Project	\$7,652	\$3,659	\$2,703
Total - RL	Office Base Funding Total	\$1,080,503	\$1,041,822	\$1,598,878

\$ in 000's

*EM Five Year Plan Target - \$1,120,185;
Total Request meets EO 12088 (\$1.389B)*

